



Accountability
Performance
Accuracy

The Nuclear Materials Management Safeguards System

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2016

Annual Users Training Meeting

May 9-12, 2016 | New Orleans, LA

Highlights of IAEA Transit Matching Best Practices Workshop

Kimberly Gilligan, PhD
Oak Ridge National Laboratory



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Outline

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- International Atomic Energy Agency (IAEA) Transit Matching
- Current State Reporting
- IAEA Transit Matching Process
- NNSA Transit Matching Project Overview
- International Meeting on Best Reporting Practices for Nuclear Material Accountancy



■ Transit Matching:

- IAEA activities confirming nuclear material transfers by matching the corresponding reports of shipments and receipts, both foreign and domestic
- Uses “machine matching” and a manual process
- A component of other IAEA safeguards activities



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Current State Reporting

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- States Submit Monthly Inventory Change Reports (ICRs)
- ICRs Indicating Transfers between Material Balance Areas are Subject to Transit Matching
 - Includes domestic and foreign transfers
- Non-nuclear Weapons States Report under Comprehensive Safeguards Agreements and Their Subsidiary Arrangements
 - Reports due 30 days after the month of the change
- Nuclear Weapon States Report under INFCIRC/207
 - Reports due as soon as possible



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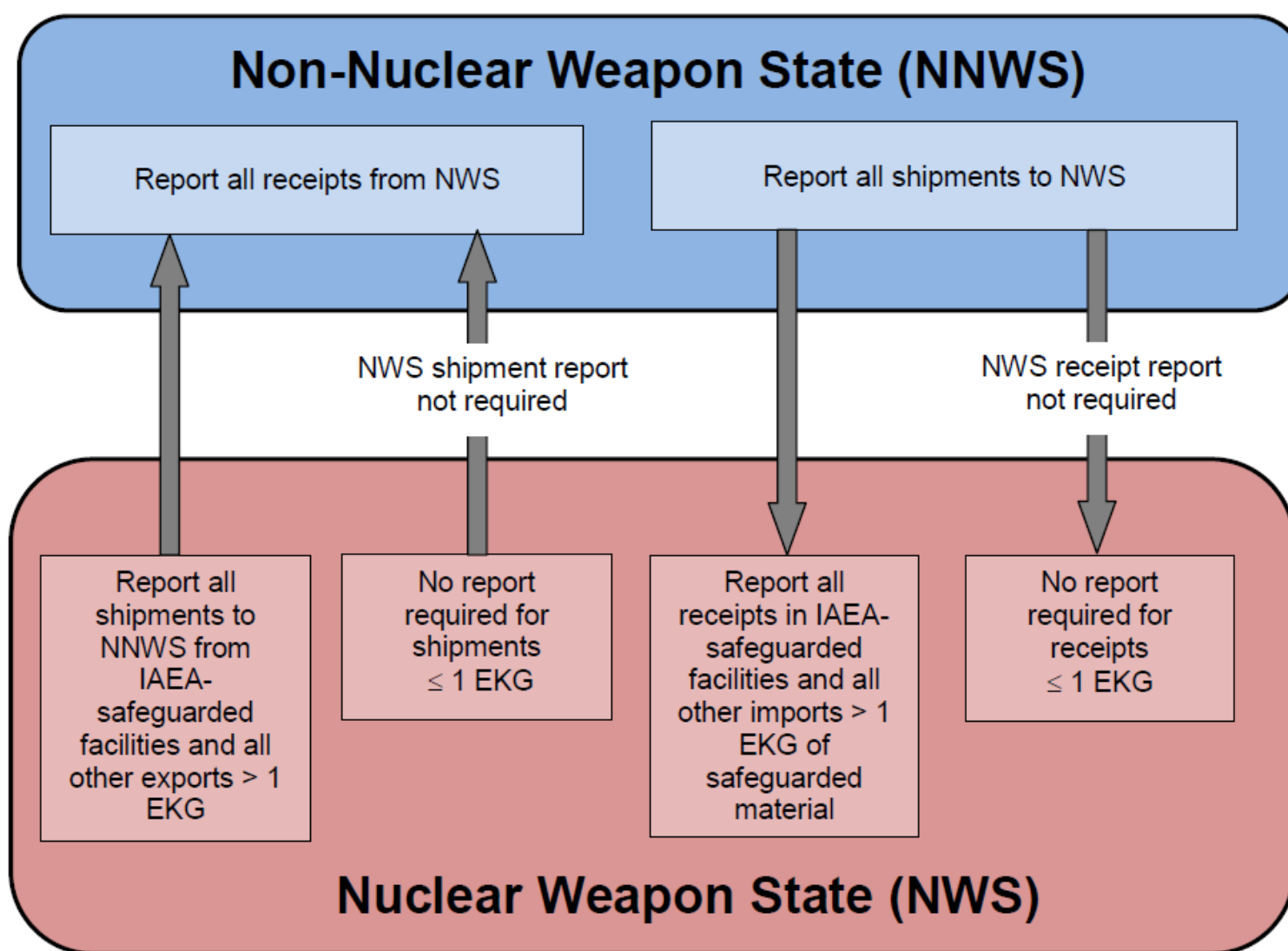
2016



NNSA



Current State Reporting - Requirements



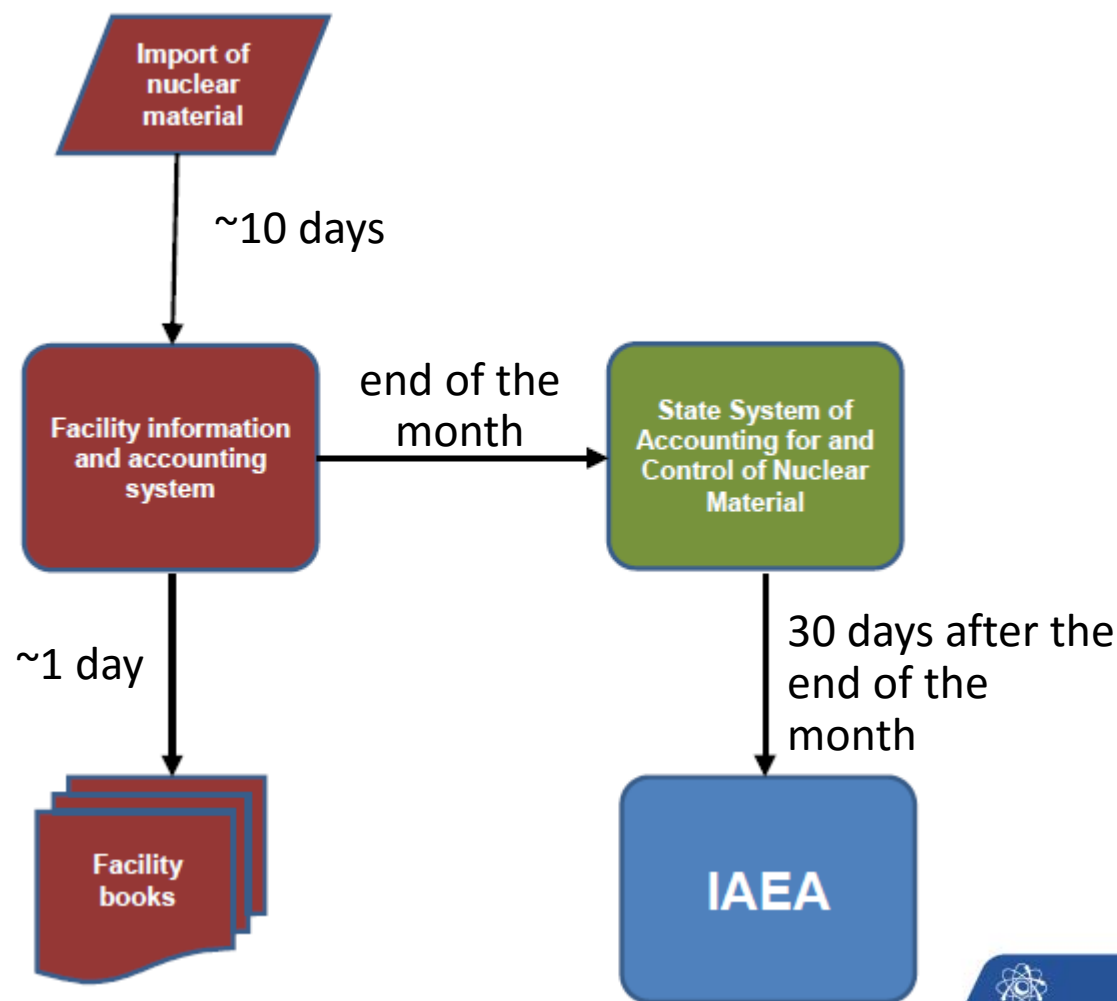
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Current State Reporting – Example Process for Receipts

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Current State Reporting – 2014 Example

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- 900,000 ICR Entries Generated by 55 States in 2014
- More Than Half Involve an INFCIRC/207 State



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IAEA Transit Matching Process

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NASA



- Machine Matching

- Staff run software algorithms daily
- Resolves about 75% of domestic transfers
- Resolves about 25% of foreign transfers

- Manual Process

- Staff review the matches made by the algorithm and make corrections as needed
- Staff match manually those that remain open
- About 3,000-4,000 records remain unmatched each quarter (including de minimus quantities)



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IAEA Transit Matching Process

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- Open Matches Are Resolved Using Quarterly Import Communications and Semiannual Statements
 - 85-90% of communications and statements are responded to, resolving most issues within 4-6 months
 - Items stay open until matched; there is no systematic “writing off” of older unmatched records
- Unmatched Records with De Minimis Quantities, Human Matching Is Held in Abeyance
 - Until the threshold for the State as a whole is exceeded



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NNSA Project: Overview

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NNSA



- Next Generation Safeguards Initiative (NGSI) Concepts and Approaches Project
- Initiated in 2013 to Research Ways to Reduce Costs Associated with Implementing Safeguards
- Identify the Challenges and Recommendations Associated with Transit Matching

International dialogue on transit matching is being revitalized for the first time since 1984 & there is a clear interest from the international community



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NNSA Project: Revitalization Effort to Date

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- 2013: Identified Challenges and Initial Recommendations Associated with Transit Matching
- 2014: Paper and Presentation on Challenges and Recommendations at Safeguards Symposium
- 2015: International Paper on *Correlating Container IDs with Batch Names to Enhance IAEA Safeguards* Presented at Institute of Nuclear Materials Management (INMM)
- 2016: Meeting on Best Reporting Practices for Nuclear Material Accountancy



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Meeting on Best Reporting Practices for Nuclear Material Accountancy

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- Conducted February 23-24, in Oak Ridge, Tennessee
- Invitations Were Sent with the Goal of Keeping the Group Small to Encourage Active Discussions
 - 3 countries, 1 regional inspectorate and the IAEA





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Meeting on Best Reporting Practices for Nuclear Material Accountancy

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- The meeting objectives were to strengthen the implementation of international safeguards by:
 - Sharing reporting and reconciliation practices from a variety of perspectives (i.e., State, regional inspectorate, and IAEA);
 - Identifying State actions that could increase machine matching;
 - Discussing representative case studies;
 - Spreading understanding of factors that impact the IAEA's transit matching; and
 - Drafting a document to share best reporting practices with all Member States



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Meeting on Best Reporting Practices for Nuclear Material Accountancy

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- Each country and inspectorate gave a short presentation on their processes, procedures, and policies relevant to reporting for IAEA transit matching
- The participants were divided into two groups to work through eight case studies





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Meeting on Best Reporting Practices for Nuclear Material Accountancy

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■ Outcomes of Meeting:

- IAEA is adding an annex on transit matching best practices in the *Safeguards Implementation Practices (SIP): Provision of Information* that is being published this summer
- Identified best reporting practices within existing State (or regional) authority (SRA) and best practices that may require additional legal authority
- A technical report on best practices will be written for international distribution
- Discussion highlights will be documented and presented at INMM in July



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Best Reporting Practices for Nuclear Material Accountancy

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- Within a State (or regional) authority (SRA) responsible for safeguards implementation
 - Strict adherence to Code 10 and use of shipper batch name
 - Single common point of contact
 - Training for SRA and reporting facilities staff (& refresher training)
 - Quality control
 - Timely reporting and striving to resolve inconsistencies within 30 days
 - Open lines of communication with IAEA analysts





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- SRA may need additional authority
 - Develop an electronic reporting system
 - Implementation of Code 10 material description codes at the facility level
 - Bilateral agreements to formalize international communication related to NMA reporting



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Best Reporting Practices for Nuclear Material Accountancy

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■ Within IAEA Authority

- Provision of detailed definition and guidance of “good reporting”
- More thorough feedback in Quarterly Reports
- Possible online portal for facilitating communication with IAEA and other reporting States (as well as a consolidated location for relevant reference documents)
- Increased number of facility attachments with consistent requirements
- Revision of Code 10 to increase consistency in reporting and user friendliness
- Inclusion of transit matching in the annual Safeguards Implementation Report



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Questions?

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The Authors Thank:

- U.S. Department of Energy's National Nuclear Security Administration (DOE/NNSA) Office of Nonproliferation and International Security (NA-24)
- U.S. Department of Energy's National Nuclear Security Administration (DOE/NNSA) Office of Nuclear Material Integration (NA-53)
- IAEA Declared Information Analysis Section
- U.S. Nuclear Regulatory Commission

